

Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed**1.1. Name of the Data, data collection Project, or data-producing Program:**

2008 Kenai Watershed Forum Topographic LiDAR: Kenai Peninsula, Alaska

1.2. Summary description of the data:

USGS Contract No. 07CRCN0002

USGS Task Order No. 07002C0021.

This delivery contains point cloud data in LAS 1.1 format, classified in the following manner. Class 0: Never Classified, Class 1: Unclassified, Class 2: Ground, Class 7: Low/High Point (Noise),

Class 10: First and Only Return (not classified as ground), Class 12: Overlap, Class 14: First of Many Returns , Class 15: Second of Many Returns, Class 16: Third of Many Returns, and

Class 17: Last of Many Returns (not classified as ground).

The following are the collection parameters and equipment used to create these data sets.

Aircrafts: Cessna 320 (N3443Q) and Piper Navajo (N6GR)

Lidar System: Optech ALTM Gemini (03SEN145)

Approximate Collection Altitude (Above Mean Terrain): 1800 meters

Ground Speed: 180 kts

Pulse Rate Frequency: 70 kHz

Mirror Scan Frequency: 40 Hz

Scan Angle (+/-): 16 degrees

Beam Divergence: Narrow (0.25 mrad)

Accuracy statements are based on areas of moderate terrain, with points classified as ground. Diminished accuracies are to be expected in areas of extreme terrain

and dense vegetation. The accuracy of each point is expected to meet the vertical accuracy standard, derived products may be less accurate in areas of extreme terrain and dense vegetation due to a lesser number of points defining the ground in these areas.

Classified data sets such as this one may have varying posting due to some pulses not reaching the ground.

Be aware the the Western Kenai Lowlands and Eastern Kenai Watershed have different accuracies and point spacings. Read this metadata record throughly to determine what the accuracies and point

spacing are for your area of interest.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2008-05-20 to 2008-10-29

1.5. Actual or planned geographic coverage of the data:

W: -151.884262, E: -148.853429, N: 61.045039, S: 59.579103

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
las

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:

NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:

coastal.info@noaa.gov

2.5. Phone number:

(843) 740-1202

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:**3.2. Title:**

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?**4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):****5. Data Lineage and Quality**

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Process Steps:

- 2008-06-10 00:00:00 - System Calibration: Aero-Metric collected data over a previously surveyed area in Palmer, Alaska. Data was collected at the same settings as this project, using two intersecting perpendicular lines. Two GPS ground stations were operating on site in order to minimize GPS error. The data was classified in each line separately for ground and other common features between lines, such as building roofs. This data was processed in TerraMatch 8.001 (TerraSolid, Ltd.), to compute corrections for roll, pitch, heading, and mirror scale. These corrections were applied to the initial processing settings (.res file). The data was reprocessed to verify the corrections were applied properly. The corrected data was then compared to ground surveyed measurements in order to check for any consistent vertical bias. The final step in calibration verified there was minimal vertical noise due to changes in intensity. This was done by comparing elevations of points on the airport runway, one point on a runway stripe and another adjacent point on the

pavement.

- 2008-07-28 00:00:00 - Create a smoothed-best estimated trajectory (SBET) of the sensor at a rate of 200 Hz, by integrating the airborne GPS and IMU data. The basis of the GPS coordinates were provided to Aero-Metric by DOWL/HKM, and were referenced to NAD83 (CORS96) with GEOID06 derived orthometric heights. The maximum baseline distance for this area was 23 km, the average base line length was 15 km. The mean GPS positional accuracy for this area was +/- 0.05 meters.
- 2008-07-28 00:00:00 - Integrate SBET and raw laser data to produce point cloud data in LAS 1.1 format for each flight line.
- 2008-07-28 00:00:00 - Compute the roll, pitch, heading, and mirror scale correction factors for each flight line, then apply corrections to the corresponding flight line.
- 2008-08-21 00:00:00 - Automated classification of the bare-earth data from the lidar point cloud using a series of algorithms customized for the types of terrain encountered in the project.
- 2008-08-22 00:00:00 - Manual classification of any data which appears to be bare-earth but was not properly classified using the automated methods.
- 2010-01-21 00:00:00 - Create point clouds in LAS 1.1 format for all returns.
- 2009-10-02 00:00:00 - Data verified using survey control points, located throughout the area.
- 2010-01-21 00:00:00 - Metadata updated for Bounding coordinates, Spatial Reference info using FGDC template
- 2013-07-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received the topographic files in LAS V1.1 format. The files contained lidar elevation and intensity measurements. The data were received in Alaska State Plane Zone 4 (FIPS 5004), NAD83 coordinates and were vertically referenced to NAVD88 using the Geoid06 model. The vertical units of the data were feet. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. The User_Data field of the LAS files' header was set to a value (0-7) to reflect the LiDAR Data Areas (Area A: 0, Area B: 1, Area C: 2, Area D: 3, Area E: 4, Area F: 6, Area G: 5, Area H: 7) 2. The classification scheme was rearranged. Class 10 (High Noise) was combined into Class 7 (Low Noise). Class 11 (Single Return, not ground) was reclassified as Class 10. Class 13 (1st return of many returns) was reclassified as Class 14. Class 14 (2nd return of many) was reclassified as Class 15. Class 15 (3rd of many returns) was reclassified as Class 16. Class 16 (Last return of many) was reclassified as Class 17. 3. The topographic las files were converted from orthometric (NAVD88) heights to ellipsoidal heights using Geoid06. 4. The topographic las files were converted from a Projected Coordinate System (AK SP Zone 4) to a Geographic Coordinate system (NAD83). 5. The topographic las files' vertical units were converted from feet to meters. 6. The topographic las files' horizontal units were converted from feet to decimal degrees.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):**6. Data Documentation**

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:**6.3. URL of metadata folder or data catalog, if known:**

<https://www.fisheries.noaa.gov/inport/item/49620>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is

explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:

NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=2512>

https://coast.noaa.gov/htdata/lidar1_z/geoid12b/data/2512

7.3. Data access methods or services offered:

This data can be obtained on-line at the following URL:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=2512>

;

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:

(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):

Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.